

Random drug testing in schools

In January 2005, a school in Kent became the first state school in the UK to report the introduction of random ('suspicionless') drug testing. Testing is already widespread in independent boarding schools, with three-quarters of schools reported to be using some drug testing.¹ There is no doubt that for governors, teachers and parents drug testing seems an attractive solution both to prevent and deal with illicit drug use among their pupils. The Kent initiative, partly funded by the *News of World* and supported by the testing manufacturers Altria Healthcare plc, has been broadly welcomed, such that only a small proportion of parents have opted their children out of the scheme.² Despite the enthusiasm from teachers and parents for testing, few empirical studies have examined the effects of drug testing in schools. With adults, an Independent Inquiry into Drug Testing at Work³ cautioned against introducing random drug testing in the workplace, concluding that it was inappropriate to drug test as a means of policing private behaviour of employees or improving productivity, except perhaps in safety-critical industries. We believe that if drug testing is not appropriate for adult employees then it should also be unacceptable to test school children.

Illicit drug use is certainly prevalent among the young. In 2002–2003 the British Crime Survey⁴ found that 36% of 16–59-year-olds reported using one or more illicit drugs in their lifetime, 13% using Class A (cocaine, heroin) drugs. Cannabis is the most frequently reported drug with around 3 million users per year and 16–24-year-olds were the age group most likely to use illicit drugs in the past year (28%). The latest survey of school children by the Department of Health⁵ reported that 21% had used drugs in the past year with 12% admitting to having used in the past month. As with adults, cannabis was the most frequently used drug.

EFFECTIVENESS OF TESTING

Those that advocate drug testing in schools do so in the belief that it is likely to reduce drug taking, deter use, provide proof where use is suspected, assist former users to remain abstinent, reassure parents that 'something is being done' and act as final proof when expulsion is being considered. The Office of National Drug Control Policy in US⁶ asserts that random drug testing in schools has been effective in reducing drug use and, most importantly, deters drug use among adolescents. Drug testing was responsible for a significant reduction in cigarette smoking among 8th grade students (13-year-olds) from 35.9% to 24.4%, alcohol use from 39.9% to 30%, and cannabis use from 18.5% to 11.8%.

In an attempt to examine the effectiveness of drug testing, James and Moore studied 296 adolescents who had established drug or alcohol problems attending a treatment centre.⁷ Drug testing was an effective tool in helping to prescribe appropriate treatment strategies for these young people with pre-existing drug problems. The authors concluded that strategic and focused testing via urine tests could bring about behavioural change, although it is unwise to generalise this specific situation to that of a large school where only a small proportion of the pupils will have problems with drug or alcohol misuse.

PROBLEMS WITH TESTING

The only systematic study of random drug testing in schools failed to find an impact.⁸ In this study of 76 000 8th, 10th and 12th grade students across a number of schools the researchers found that testing was not associated with either the prevalence or the frequency of student cannabis use and other illicit drug use by male high school athletes. McKeganey,⁹ in an important review of drug testing in schools published by the Joseph Rowntree Foundation, noted the concern at the development of drug testing

programmes on the 'basis of the slimmest available research evidence'.

TESTING METHODS

Drug testing is conducted by taking blood, urine, saliva, hair, breath or sweat, and analysing this sample to determine whether it contains certain substances. The biological detection involves a screening test followed by a confirmatory test if positive. The different methods provide different information, with some, such as hair tests, able to test for drugs used within the past 12 weeks or longer depending on the length of the hair sample (7–100+ days). Other detection times include; 1–3 days for urine, 1–36 hours for saliva and 1–14 days for sweat.¹⁰ Each method carries its own problems. For example, while urine testing is cheap and able to detect most drugs of misuse, observed tests (to avoid adulteration) are problematic in children. Hair testing is more expensive, can provide qualitative and quantitative analysis of drug use over previous weeks although cannot detect very recent (past few days) use. Hair testing can be discriminatory: dark-haired people are more likely to test positive than blonds, as well as having the problem of false-positive results due to passive exposure. Testing saliva (the method used in the Kent school²) has the advantages of acceptability, and little chance of adulteration as it is obtained under direct observation. However, there is a very short detection window and, moreover, saliva is less effective in the detection of cannabis, the most widely abused drug in adolescence. Testing sweat is more expensive than other methods, requires specialist laboratory services for analysis and can be contaminated by passive exposure. Nevertheless, it is non-invasive, is quick to apply, and is difficult to provide sample substitution and, hence, may have some advantages over other methods.

There are significant problems

associated with testing. The cheapest form of testing is the low-cost immunoassay urine test, and costs around US\$14–30 per test;¹¹ confirmatory tests also add to the cost. False positives can be found from commonly taken medications: codeine products and poppy seeds can produce false-positive tests for opiates; ibuprofen a false positive for cannabis; and decongestants false positive for amphetamines. Even herbal teas can produce false-positive results.¹² To avoid false positives it would be important to ask the student to list prescribed and non-prescribed medication, creating an additional burden of non-confidentiality. The quick and easy immunoassay tests can only be used as a preliminary screening tool, with any 'positive' result requiring a more sensitive confirmatory test before relying on the results for any purpose that may have serious consequences to the person being tested. Even using the cheapest screening test the whole procedure can be costly for schools, especially as frequent testing increases a potential deterrent effect of testing. Too infrequent testing will only serve to minimise the risk that youths feel of being detected. The cost of testing is likely to exceed most schools' entire expenditure on drug education, prevention or counselling. In one school district in US, the cost of detecting only 11 students who tested positive amounted to US\$35 000.¹³

CONSENT AND SUPPORT

It is possible that a random drug testing policy may inadvertently move users from experimental into problematic use if drug testing 'captures' social use and makes problematic what is currently transient and non-problematic. Students can outsmart their testers and find ways of cheating the tests. A Google search for 'passing a drug test' resulted in over 900 000 hits in less than 1 second. In a school district in US, students who were facing a hair test shaved their heads and body hair.¹⁴ Others have argued that drug testing can lead to mistrust and resistance from students and, thus, inadvertently perpetuate problems, particularly in inner city schools.¹⁵

The lack of trust implicit on testing must not be underestimated. By

subjecting a young person to testing, even with the student's and parental consent, implies a loss of trust. The process of testing may be long and involved with initial screening tests and then confirmatory tests if the result is positive. This process may be harmful for the child, leading him or her to be labeled as a user. If drug testing is introduced it must therefore be supported by treatment and a supportive environment.

Drug testing must respect privacy and confidentiality. Parents and children must receive accurate and detailed information on the school policy; parents must give consent for younger children, with older children giving their own consent if they understand the full implications. All should be fully informed of the problems with biological testing, the course of action that will be taken on the result of a test — this both in terms of disciplinary action but more importantly treatment approaches — and pastoral care and support. At present there is little evidence that random testing in schools prevents drug use in those that have not started or deters those already engaged in drug taking. In addition,¹⁶ it has been argued that random testing fails the Department of Health screening criteria.¹⁷ Schools need to determine whether random testing is a preventative and/or deterrent measure, or used within a treatment programme. There is an urgent need to determine whether such programmes are effective in accomplishing specific goals in order to justify continued and more generalised testing. The Department for Education and Skills have produced guidance on all matters relating to drug education, the management of drugs within the school community and supporting the needs of pupils.¹⁸ This guidance recommended that schools should ensure that pupils who may be vulnerable to drug misuse are identified and receive appropriate support, although, importantly, does not suggest random testing to identify these pupils.

CONCLUSION

If drug-testing programmes are instituted they should at the very least involve children, parents and the wider community in a consensus on the type of testing and responses to such testing.

Alone, random testing will not identify all those young people who may benefit from early identification and supportive intervention. A supportive environment with links to young people's health services may be more appropriate. We believe the ethical, practical and economic risks of testing do not outweigh the potential benefits, and stress the importance of research before introduction of a widespread programme that has little evidence.

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Competing interests

Clare Gerada was a member of the Independent Inquiry into Drug Testing at Work.

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The use (or otherwise) of pulse oximetry in general practice

The pulse oximeter is a diagnostic tool that enables the indirect measurement of the percentage of oxygenated haemoglobin in a patient's capillary blood.¹ It has been widely used in secondary care for over two decades,² especially in peri-operative, paediatric and intensive care patients. Pulse oximetry is often used in emergency departments,³ but is less well established in general practice.

Pulse oximeters work by measuring the light absorption properties of haemoglobin¹ using a red-infrared light source. The amount of light absorbed varies according to the proportion of oxygenated haemoglobin in the blood, and this is analysed to generate a numerical saturation reading. Readings have an accuracy of $\pm 2\%$ although this varies with models^{2,5}. Finger probes are generally more accurate than ear probes.⁵ Accuracy is reduced during severe desaturation (readings below 70%), haemoglobinopathies, hypotension, hypothermia and reduced perfusion states, and carbon monoxide poisoning (including very heavy smokers, who can achieve up to 10% arterial carboxyhaemoglobin).¹

In acute illness, patients are primarily assessed either by their GP, or within an Accident and Emergency (A&E) department. Blood gas measurement of arterial saturation (pAO₂) in A&E patients

with acute breathlessness⁴ found that pulse oximetry showing oxygen saturations (sO₂) of 92% or less have a 100% sensitivity and 86% specificity to detect central hypoxia (pAO₂ <8.1 kPa or <60 mmHg). A higher cut-off of sO₂ of <96% maintains sensitivity of 100%, but specificity decreases to 54%.⁸

Oximeter use has also been studied in US nursing home patients with a documented baseline oximetry sO₂.⁵ Patients who went on to develop pneumonia had a mean decrease of 6% in sO₂, and those with a greater than 3% drop in sO₂ had a specificity of 100% and positive predictive value of 100% for the presence of pneumonia, as compared to other sepsis.

Pulse oximetry is commonly used in the assessment of children with asthma and wheezing; not least because of the difficulty in subjecting children to repeated blood gases.⁶ In isolation sO₂ is not enough to reliably predict which patients require admission.⁷ However, use of a derived clinical severity score (based on wheezing, respiratory rate, and subcostal recession) has shown that sO₂ correlates directly with peak flow rate, and inversely with severity score and heart rate.⁸ Children with sO₂ of <92% at presentation in this study were significantly more likely to require admission and multiple nebulisers.

Chronic obstructive pulmonary disease

(COPD) has a considerable prevalence within the general practice population, and can cause overnight or exercise hypoxia.⁹ Some patients with COPD gain a survival benefit from long-term oxygen therapy (LTOT),¹⁰ usually administered via a home concentrator. Pulse oximetry has been used in general practice to screen COPD patients, identifying those who might benefit from LTOT.¹¹

Another chronic disease use for pulse oximetry is in the assessment of patients with venous leg ulcers, where significant vascular disease is a contraindication for compression bandaging. A modified form of pulse oximetry has been proposed as an alternative to the technically difficult ankle-brachial pressure index (ABPI) to select which patients can be safely given compressive treatment of their venous leg ulcers.¹² Although this is a single study in only 39 patients, it raises interesting possibilities for changes in practice which might be reinforced by a larger study.

Modified pulse oximetry has also been studied as a monitoring tool to track vascular disease progression in diabetic patients.¹³ ABPI measurements are often inaccurate in those patients with diabetic small-vessel disease (arterial media sclerosis); it may be that oximetry can provide a sensitive tool to detect vascular problems at an early stage and guide specialist referrals. Qualitative work